

INSPIRE as an effective tool for e-reporting:

the EEA 'EU Registry on industrial emissions'

INSPIRE and Beyond

Darmstadt 24-05-2018



INSPIRE Helpdesk
We support all INSPIRE implementers



Not just for INSPIRE's sake

Long-term objective:

From Member States sending very similar data many times to different EU institutions and bodies

To responsible authorities - at national as well as EU level - harvesting Member States' well documented, up-to-date, interoperable datasets made accessible through standardised web services.



Ongoing activities concerning the integration and **re-use of INSPIRE** in the broader framework of **government data and services** from one side and of **EU environmental reporting obligations** from the other will turn into

- ▶ **reduced reporting burden** on Member States
- ▶ increased availability of **up-to-date, consistent, easily discoverable** environmental information

INSPIRE and EEA e-reporting data flows : following a pragmatic approach

“Integration”: INSPIRE requirements from multiple data themes are integrated with the specific environmental reporting requirements. This approach underpins the development of the current **Air Quality Directive** data flow (INSPIRE AU, EF and AM).

“Extension”: a single INSPIRE Theme is extended to include the specific requirements stemming from the reporting. This approach underpins the development of the current **EU Registry on Industrial Sites** data model.

“Linked Approach”: INSPIRE is **re-used “as is”**. Environmental data flows contain references to INSPIRE datasets already produced by Member States to fulfil their INSPIRE obligations. The “linked approach” underpins the development of the current data model for the provision of the “Nationally designated areas inventory” (**CDDA**) 2018.

EU Registry on industrial sites

The *EU Registry on industrial sites* dataflow collects information on facilities, installations and plants which are obliged to report under the **E-PRTR** Regulation and the **IED** (Industrial Emissions Directive).

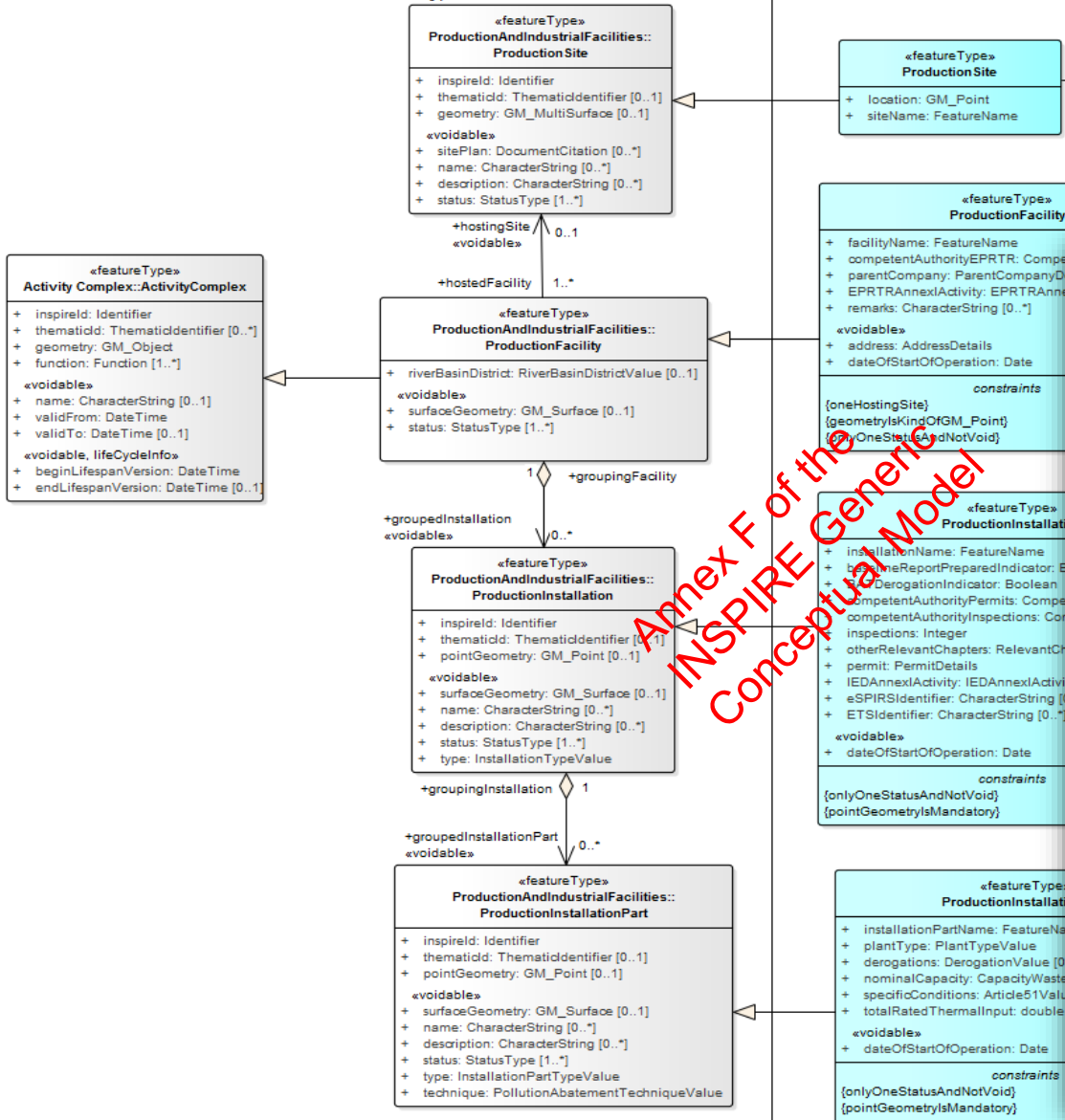
It will be used as a **reference dataset** for the identification of facilities and large combustion plants in the Integrated E-PRTR and LCP reporting.



INSPIRE - extended schema

GML EU Registry data model

INSPIRE feature types



Legend

- INSPIRE
- EURRegistry extension

Fields for which no multiplicity is specified are supposed to be mandatory i.e. multiplicity = [1..1]

INSPIRE Data Specification Extensions

Get the most out of INSPIRE by extending data specifications!



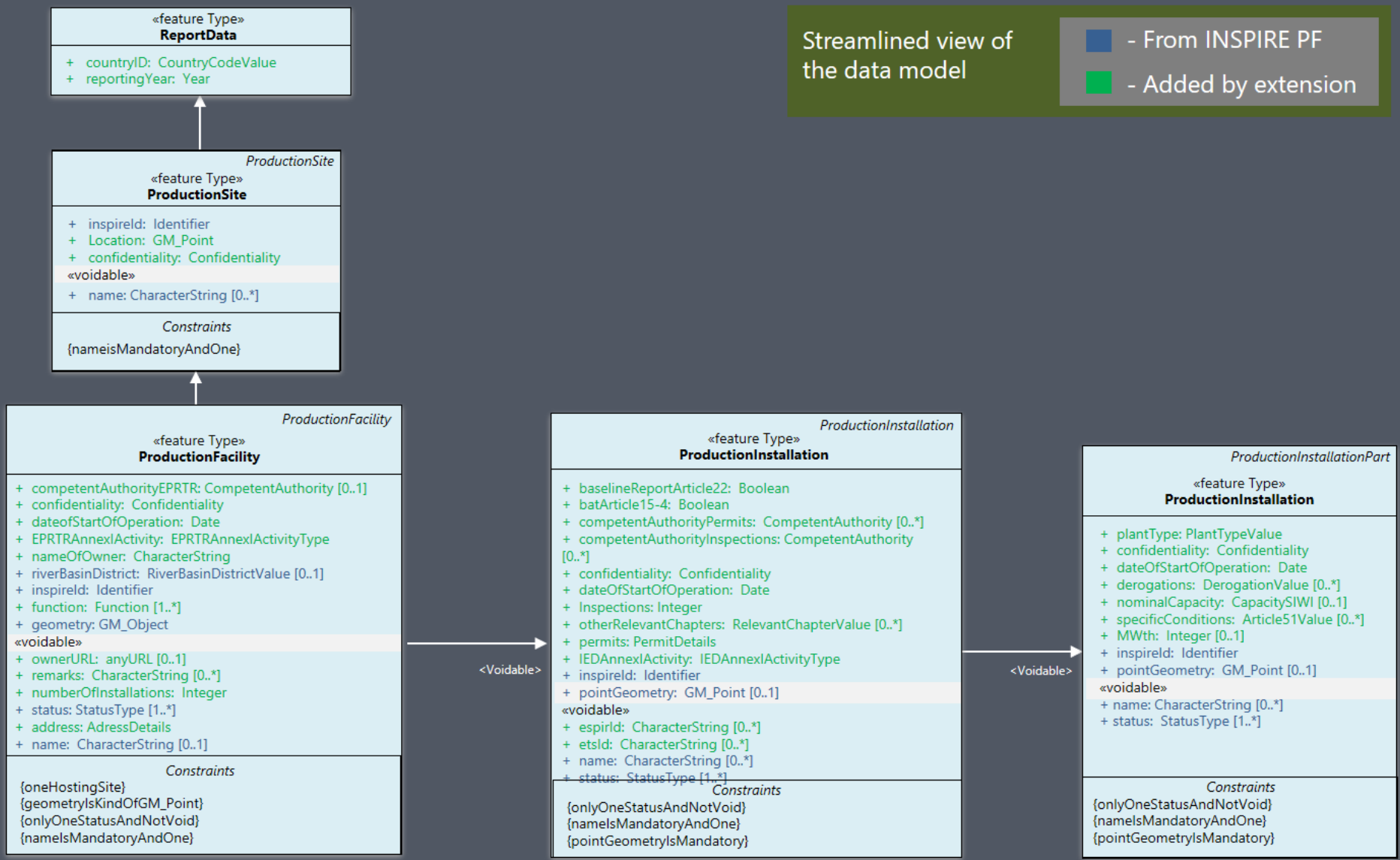
wet
This project is maintained by **wettransform.**

EU Registry - streamlined view

structure in which data are to be transmitted from MS to the EEA

Streamlined view of the data model

- - From INSPIRE PF
- - Added by extension






Should the EU Registry be considered a first example of how an **INSPIREd e-reporting** could lead to a significant efficiency and effectiveness gain over the coming years?

CON



complex GML encoding - technological gaps -
need for specific organisational and ICT
capabilities





INSPIRE Thematic Clusters

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Discussion > Biodiversity and Management Areas Cluster >
It seems that there is only one fully compliant solution to serve multiple harmonised datasets...

It seems that there is only one fully compliant solution to serve multiple harmonised datasets trough WFS 2.0

3268 Views

 **It seems that there is only one fully compliant solution to serve multiple harmonised datasets trough WFS 2.0** Public  [Recommended Implementation Examples](#), [Best Practice](#), [SAW tools](#), [Member State issues](#) 2 likes
Started by [Iurie MAXIM](#) 659 days ago | 01.08.2016 [Replies \(51\)](#)
[WFS](#), [Snowflake](#), [GoPublisher WFS](#), [Deegree](#), [ArcGIS for Inspire](#), [Geoserver](#), [download service](#), [network service](#), [cross-cluster](#)

We investigated several solutions to serve **multiple** harmonised datasets trough **WFS 2.0** according to [Technical Guidelines for Download Services](#). We are not discussing about providing access to only one dataset per server, but to provide access to more datasets.

Update 8 September 2016: The single compliant solution seems to be [Snowflake GoPublisher WFS](#).

Update 9 May 2018: Because Stefania pointed in this tread that that Deegree is able to serve two different datasets for the same XML schema at different endpoints (asking for typeNames=ps:ProtectedSites in both cases) we started some tests.
So, it is still to see if Deegree is able to serve two different datasets based on multiple XML schemas at different endpoints in order to say that Deegree is compliant with **Requirement 52**, but is a big step forward in fulfilling the Requirement 52. For those data providers that need to serve feature types from one application schema at one endpoint Deegree is fulfilling the Req 52. We did not tested it yet to see if there are not other issues in order to confirm that it is able to serve **multiple** harmonised datasets based on **multiple** XML schemas trough **WFS 2.0** according to [Technical Guidelines for Download Services](#). Versions 3.4-RC (unstable) are passing the EPSG in URI format test, while 3.3 (stable) are not passing the test as EPSG is provided in URN format. As Deegree versions 3.4-RC are advertised as unstable and as there is no 3.4 stable version, it is not sure if Deegree is passing all the requirements of the [Technical Guidelines for Download Services](#). However it should be noted that Deegree 3.4 version is [OCG WFS 2.0 certified](#). If anyone had tested Deegree against each requirement from the TG, please share this information.

To conclude about Geoserver 2.13.0, for those data providers that need to serve feature types from one XML schema at one and only one endpoint, Geoserver 2.13.0 is fulfilling the Req 52. Geoserver seems not to be able yet to serve feature types from the same XML schema at different endpoints, even if using the newly created isolated workspaces.

PRO



BENEFIT n° 1

Same mapping table can be used
to map site / facilities /
installation/installation parts
both towards EuRegistry schema
and INSPIRE PF schema

From DB tables and excels to EU Registry: the mapping table

Source Type	Source properties	Target type	Target properties	Relation name	Priority	Cell explanation
PF PF_PI_ID Status		ProductionFacility		Join	normal	Joins the types 'PF', 'PF_PI_ID', 'Status' based on the following conditions: 'PF'.status = 'Status'.StatusID 'PF'.PF.ID = 'PF_PI_ID'.ProductionFacilityID
PF	EPRTR.mainActivity	ProductionFacility	EPRTRAnnexIActivity .EPRTRAnnexIActivityType .mainActivity .href	Rename	normal	For each value in 'EPRTR.mainActivity' adds the same value to the 'href' property. If necessary a conversion is applied.
PF	EPRTR.otherActivity	ProductionFacility	EPRTRAnnexIActivity .EPRTRAnnexIActivityType .otherActivity .href	Rename	normal	For each value in 'EPRTR.otherActivity' adds the same value to the 'href' property. If necessary a conversion is applied.
PF	PF_addr.buildingNumber	ProductionFacility	address .AddressDetails .buildingNumber	Rename	normal	For each value in 'PF_addr.buildingNumber' adds the same value to the 'buildingNumber' property. If necessary a conversion is applied.
PF	PF_addr.city	ProductionFacility	address .AddressDetails .city	Rename	normal	For each value in 'PF_addr.city' adds the same value to the 'city' property. If necessary a conversion is applied.
PF	PF_addr.confidentialityReason	ProductionFacility	address .AddressDetails .confidentialityReason .href	Rename	normal	For each value in 'PF_addr.confidentialityReason' adds the same value to the 'href' property. If necessary a conversion is applied.
PF	PF_addr.postalCode	ProductionFacility	address .AddressDetails .postalCode	Rename	normal	For each value in 'PF_addr.postalCode' adds the same value to the 'postalCode' property. If necessary a conversion is applied.
PF	PF_addr.streetName	ProductionFacility	address .AddressDetails .streetName	Rename	normal	For each value in 'PF_addr.streetName' adds the same value to the 'streetName' property. If necessary a conversion is applied.
PF	CA.buildingNumber	ProductionFacility	competentAuthorityEPRTR .CompetentAuthority .address .AddressDetails .buildingNumber	Rename	normal	For each value in 'CA.buildingNumber' adds the same value to the 'buildingNumber' property. If necessary a conversion is applied.
PF	CA.city	ProductionFacility	competentAuthorityEPRTR .CompetentAuthority .address .AddressDetails .city	Rename	normal	For each value in 'CA.city' adds the same value to the 'city' property. If necessary a conversion is applied.

PRO



BENEFIT n° 2

The same transformation project used to obtain the Euregistry dataset for fulfillment of reporting obligation **can be re-used with almost no modifications** to get the INSPIRE PF dataset for fulfillment of INSPIRE obligation

From DB tables and excels to EU Registry: the transformation project

The screenshot displays the hale studio 3.4.0 interface for a data transformation project. The title bar shows the file path: `D:\AreaShared\EEA_Framework_Contract\Task.IED_EPRTR_PF\DBMS_EURegistry\EURegistry_HALE.halez`. The main window is divided into three primary sections:

- Schema Explorer:** Located on the left, it shows two panes: 'Source' and 'Target'. The 'Source' pane lists tables such as `CompetentAuthorityInspections`, `CompetentAuthorityPermits`, `PF`, `PF_PIP_ID`, `PI`, `PI_PIP_ID`, `PIP`, `PS`, `RD`, and `Status`. The 'Target' pane lists fact tables: `ProductionFacility`, `ProductionInstallation`, `ProductionInstallationPart`, `ProductionSite`, and `ReportData`.
- Alignment View:** On the right, this view maps the source tables to target fact tables. It features a central workspace with several 'Join' operations (represented by blue hexagons) and 'Retype' operations (represented by blue rounded rectangles). Source tables like `PF`, `PF_PIP_ID`, `PIP`, `CompetentAuthority/Inspections`, `PI`, `CompetentAuthorityPermits`, `PI_PIP_ID`, and `Status` are connected to 'Join' nodes. These nodes are then connected to target fact tables: `ProductionFacility`, `ProductionInstallationPart`, `ProductionInstallation`, `ProductionSite`, and `ReportData`. Labels like 'types' and 'types types' indicate the relationships between the source and target elements.

PRO



BENEFIT n° 3

You can use a simple XSLT transformation to transform the Euregistry gml dataset needed for reporting obligation into the INSPIRE PF gml dataset for the same information

EU Registry example

```
PF_from_EURegistry.GML x EURegistry_Example.GML x
13  xmlns:tn="http://inspire.ec.europa.eu/schemas/tn/4.0"
14  xmlns:base="http://inspire.ec.europa.eu/schemas/base/3.3"
15  xmlns:gn="http://inspire.ec.europa.eu/schemas/gn/4.0"
16  xmlns:EUReg="http://dd.eionet.europa.eu/euregistryonindustrialsites"
17  xmlns:gmd="http://www.isotc211.org/2005/gmd"
18  xmlns:bu-base="http://inspire.ec.europa.eu/schemas/bu-base/4.0"
19  xmlns:gsr="http://www.isotc211.org/2005/gsr" xmlns:gts="http://www.isotc211.org/2005/gts"
20  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gss="http://www.isotc211.org/2005/gss"
21  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
22  gml:id="8c837975-5230-45e7-8524-0802cf252f70"
23  xsi:schemaLocation="http://dd.eionet.europa.eu/schemas/euregistryonindustrialsites http://dd.eionet.europa.eu/schemas/euregistryonindustrialsites/EUReg.xsd"
24  <gml:boundedBy>
25    <gml:Envelope srsName="urn:ogc:def:crs:EPSG::4326" srsDimension="2">
26      <gml:lowerCorner>2.104327 41.991925</gml:lowerCorner>
27      <gml:upperCorner>2.104334 41.991932</gml:upperCorner>
28    </gml:Envelope>
29  </gml:boundedBy>
30  <gml:featureMember>
31    <EUReg:ProductionSite gml:id="PS_1">
32      <pf:inspireId>
33        <base:Identifier>
34          <base:localId>123456789.SITE</base:localId>
35          <base:namespace>ES.CAED</base:namespace>
36        </base:Identifier>
37      </pf:inspireId>
38      <pf:status xsi:nil="true"/>
39      <EUReg:siteName>
40        <EUReg:FeatureName>
41          <EUReg:nameOfFeature>EXAMPLE SITE 1</EUReg:nameOfFeature>
42        </EUReg:FeatureName>
43      </EUReg:siteName>
44      <EUReg:location>
45        <gml:Point gml:id="d22b638f-2084-4c46-8351-42778a308b87" srsDimension="2">
46          <gml:pos>41.991925 2.104334</gml:pos>
47        </gml:Point>
```

same data according to INSPIRE PF

PF_from_EURegistry.GML

```
16  xmlns:EUReg="http://dd.eionet.europa.eu/euregistryonindustrialsites"
17  xmlns:gmd="http://www.isotc211.org/2005/gmd"
18  xmlns:bu-base="http://inspire.ec.europa.eu/schemas/bu-base/4.0"
19  xmlns:gss="http://www.isotc211.org/2005/gss" xmlns:gts="http://www.isotc211.org/2005/gts"
20  xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gss="http://www.isotc211.org/2005/gss"
21  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
22  gml:id="_8c837975-5230-45e7-8524-0802cf252f70"
23  xsi:schemaLocation="http://inspire.ec.europa.eu/schemas/pf/4.0 http://inspire.ec.europa.eu/schemas/pf/4.0/ProductionAndIndustrialFacilities.xsd"
24  <gml:boundedBy>
25    <gml:Envelope srsName="urn:ogc:def:crs:EPSG::4326" srsDimension="2">
26      <gml:lowerCorner>2.104327 41.991925</gml:lowerCorner>
27      <gml:upperCorner>2.104334 41.991932</gml:upperCorner>
28    </gml:Envelope>
29  </gml:boundedBy>
30  <gml:featureMember>
31    <pf:ProductionSite gml:id="PS_1">
32      <pf:inspireId>
33        <base:Identifier>
34          <base:localId>123456789.SITE</base:localId>
35          <base:namespace>ES.CAED</base:namespace>
36        </base:Identifier>
37      </pf:inspireId>
38      <pf:status xsi:nil="true"/>
39    </pf:ProductionSite>
40  </gml:featureMember>
41  <gml:featureMember>
42    <pf:ProductionFacility gml:id="PF_1">
43      <act-core:inspireId>
44        <base:Identifier>
45          <base:localId>000000002.FACILITY</base:localId>
46          <base:namespace>ES.CAED</base:namespace>
47        </base:Identifier>
48      </act-core:inspireId>
49      <act-core:geometry>
```




Be aware that

The PF dataset obtained following the illustrated methodology, lacks most of the **optional fields** foreseen in the PF data model. Therefore, though being a valid INSPIRE PF dataset, for a **true usability** of the dataset, consider adding few steps to the transformation project to take into account those optional fields as well.



It's a deal!

Providing industrial sites reporting according to an INSPIRE extended schema empowers the Member States to streamline their efforts to fulfil both INSPIRE and e-reporting obligations, since investments in implementing the EU Registry are building on their INSPIRE compliance.

Thank you !

Questions ?

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